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Surface coated cutting tool - has composite hard layer comprising inner layer of carbide, nitride, carbonitride, oxycarbide and/or carbonitrooxide of titanium and outer alumina layer formed on substrate

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Number of Patents: 003

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Patent Family:

CC Number	Kind	Date	Week	
JP 6190605	A	940712	9432	(Basic)
EP 686707	A1	951213	9603	
US 5545490	A	960813	9638	

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Designated States

(Regional): DE; FR; GB; IT

Abstract (Basic): JP 06190605 A ✓

Surface coated cutting tool has a composite hard layer comprising an inner layer comprising single layer of at least one of carbide, nitride, carbonitride, oxycarbide, and carbonitride of Ti, or a composite layer of more than one of these Ti-cpds., and an outer layer contg. at least one of Al-oxide layer, formed on the surface of a substrate, in which Al-oxide layer is constituted with Al-oxide mainly of kappa-type crystals having  $IA/IB = \text{over } 2$ , where  $IA = \text{peak intensity at A-plane having spacing of } 2/69 \text{ Angstroms of kappa-Al}_2\text{O}_3$ , and  $IB = \text{peak intensity at B-plane having } 2.57 \text{ Angstroms of kappa-Al}_2\text{O}_3$ , in X-ray diffraction in ASTM.

USE - Used for cutting tools coated with CVD composite hard layer contg. Al-oxide, excellent of resistance to wear, and to chipping.  
Dwg.0/0

Abstract (US): 9638 US 5545490 A

A cutting tool comprising a substrate whose surface is coated with a composite hard layer including an inner layer having at least one layer selected from the group consisting of titanium carbide, titanium nitride, titanium carbonitride, titanium carboxide, and titanium oxycarbonitride, and an outer layer having at least one alumina layer,

wherein the alumina layer contains a K-type alumina such that an X-ray intensity ratio  $IA/IB$  of two specific crystal faces A and B in X-ray diffraction is not smaller than 2, where the faces A and B denote faces of K-type alumina defined as those whose interfacial distances are 2.79 Angstrom in ASTM4-0878, and  $IA$  and  $IB$  denote X-ray intensities of the faces A and B in X-ray diffraction.

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Derwent Class: L02; M13; P54; P56;

Int Pat Class: B23B-027/14; B23P-015/28; B32B-015/04; C23C-014/06; C23C-016/02; C23C-030/00

1/2 - (C) PAJ / J  
PN - JP6190605 - 40712  
AP - JP920356715 921222  
PA - MITSUBISHI MATERIALS CORP  
IN - OOSHIKA TAKATOSHI  
I - B23B27/14; B23P15/28; C23C14/06  
TI - SURFACE COATED CUTTING TOOL  
AB - PURPOSE: To obtain a chemically deposited complex hard layer coated cutting tool including an aluminum oxide, which is excellent in abrasion resistance and chipping resistance.  
- CONSTITUTION: A cutting tool is constituted of an internal layer of a single layer of one kind or plural layers of two or more kinds of carbide, nitride, carbonitride, carbonate and carbonitroxide of titanium and an external layer including at least one layer of aluminum oxide layer on the surface of a base. The aluminum oxide layer is constituted of aluminum oxide mainly made of the kappa type crystal with the ratio of peak strength of a B surface: peak strength of an A surface to Ib: IA by X-ray analysis being  $IA/IB > 2$ , where the surface of the surface with surface interval of ---kappa-----Al<sub>2</sub>O<sub>3</sub>--- being 2.79 angstrom in ASTM and the B surface is the surface with the surface interval being 2.57 angstrom.  
GR - M1686  
ABV - 018538  
ABD - 941013  
XPN - J06190605  
XPR - 92JP-356715